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AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) An image processing device, comprising:

recursive filtering means for smoothing an input image, the recursive filtering means including edge setting means for setting at least one edge having a predetermined angle from a scanning line direction of the input image and control means for smoothing the image to be smoothed in correspondence with the edge set by the edge setting means;

low-frequency component compression means for setting an amount of compression of low-frequency components of the input image according to an output of the recursive filtering means; and

arithmetic means for compressing the low-frequency components of the input image by subtracting an input image which is input frame-by-frame from an ~~original~~ unsharpened image ~~of~~ at a corresponding address one line before the input image using an output of the low-frequency component compression means.

2. (Original) The image processing device according to claim 1, further comprising:

display means of displaying the input image; and

region of interest setting means of setting a region of interest in the input image displayed in the display means,

wherein the edge setting means sets the edge on the basis of the region of interest set by the region of interest setting means.

3. (Original) The image processing device according to claim 1, further comprising low-frequency component compression means of setting an amount of compression by which low-frequency components of the input image are compressed according to the smoothed image generated by the recursive filtering means,

wherein the control means changes an output from the recursive filtering means on the basis of the compression amount set by the low-frequency component compression means.

4. (Original) The image processing device according to claim 3, wherein the low-frequency component compression means has lookup table means supplied with an output value from the recursive filtering means and converting the output value into a value obtained by multiplying the output value by a predetermined coefficient.

5. (Cancelled).

6. (Original) The image processing device according to claim 1, wherein the recursive filtering means performs processing expressed by

$$g(t) = k \cdot f(t) + (1 - k) \cdot g(t - 1)$$

where g(t) is the output from the recursive filtering means, k is a filter coefficient, f(t) is the input image, 1 - k is a feedback rate, and g(t - 1) is the output from the recursive filtering means one-line before, and

changes the feedback rate (1-k) on the basis of the magnitude of the difference (d) between the input image (f(t)) and the output value (g(t - 1)) of the recursive filtering means one-line before.

7. (Original) The image processing device according to claim 1, wherein the recursive filtering means separately generate smoothed images with respect to edges in direction at 45° from the scanning line direction of the input image (left-downward direction), a direction at 90° from the scanning line direction (downward direction) and a direction at 135° from the scanning line direction (right-downward direction).

8. (Original) The image processing device according to claim 7, wherein weighting averaging is performed on the smoothed images separately generated with respect to the edges by the recursive filtering means.

9. (Cancelled).

10. (Original) The image processing device according to claim 1, further comprising delay means of delaying the input image with respect to time processings performed by the processing means including the recursive filtering means,

wherein the input image delayed by the delay means is input as the original of the image input to the arithmetic means.

11. (Original) The image processing device according to claim 1, wherein the recursive filtering means comprises:

a first line memory in which one line of the input image is stored;

a second line memory in which line data before storage in the first line memory is stored;

an arithmetic device which subtracts the line data stored in the first line memory from the line data stored in the second line memory;

lookup table means of converting the difference value obtained by subtraction performed by the arithmetic device into a value obtained by multiplying the difference value by a filter coefficient; and

an adder which adds together the value converted by the lookup table means as a result of multiplication by the filter coefficient and the line data stored in the second line memory.